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DOUGLAS' SQUIRRELS CUT PACIFIC SILVER FIR CONES IN THE WASHINGTON CASCADES

by

Jerry F. Franklin

The Douglas' squirrel *(Tamiasciurus douglasii douglasii)* cuts the cones from Pacific silver fir *(Abies amabilis)* trees, directly affecting both present and future seed crops of this species. This conclusion is based upon observations of the Douglas' squirrel in the Washington Cascade Range during September 1962. Red squirrels *(Tamiasciurus hudsonicus)* and tassel-eared squirrels *(Sciurus aberti aberti)* have been known for some time to adversely affect cone crops of ponderosa pine *(Pinus ponderosa)* by cutting off mature cones and small branches,[1/] but this type of damage has not previously been reported for any western true firs. Cone cutting by the Douglas' squirrel was observed in two localities on the eastern slopes of the Cascade Range--Crystal Springs Campground near Snoqualmie Pass and Rainy Creek near Lake Wenatchee.

[1/] Adams, Lowell. Pine squirrels reduce future crops of ponderosa pine cones. Jour. Forestry 53: 35, illus. 1955.

Lawrence, William H., Kverno, Nelson B., and Hartwell, Harry D. Guide to wildlife feeding injuries on conifers in the Pacific Northwest. West. Forestry & Conserv. Assoc., 44 pp., illus. 1961.

Pearson, G. A. Management of ponderosa pine in the southwest. U.S. Dept. Agr. Monog. 6, 218 pp., illus. 1950.

Squillace, A. E. Effect of squirrels on the supply of ponderosa pine seed. U.S. Forest Serv. North. Rocky Mtn. Forest & Range Expt. Sta. Res. Note 131, 4 pp. 1953.

Cones were collected from the ground soon after they were cut, and most cones were found attached to twigs up to 9-1/2 inches long:

	At Crystal Springs (45 cones examined)	At Rainy Creek (73 cones examined)
	(Percent)	(Percent)
Cones with complete twigs, including branch tips	76	81
Cones with section of twig but without tip	13	16
Cones without portion of twig	11	3
	100	100

Because mature Pacific silver fir cones are closely attached to their twigs, the squirrels can probably cut supporting twigs more easily than cone pedicels. Observations in other areas indicate squirrels often trim the cones from the twigs on the ground before storing. Unfortunately, many of these cone-bearing twigs bear female buds which could produce next year's cones. These buds are readily identifiable since they are on the upper side of the twig and are much larger than vegetative buds (fig. 1). Of the cut twigs collected, about one-third of those with cones attached also bore one or more female buds:

	Twigs with female buds	
	(Number)	(Percent)
Crystal Springs	12	35
Rainy Creek	16	27
	28	30

Apparently, squirrels' cutting of Pacific silver fir cones can reduce cone production in both the current and succeeding years. Since Pacific silver fir is not prolific, cone production being generally confined to the uppermost branches, any twig cutting in this portion of the crown may have an especially significant effect on the next year's cone crop.

The importance of these observations cannot be appraised objectively, of course, until information is available on the extent to

which squirrels cut Pacific silver fir cones over broad areas. In general, rodents are believed to prefer seeds of associated species.[2/]

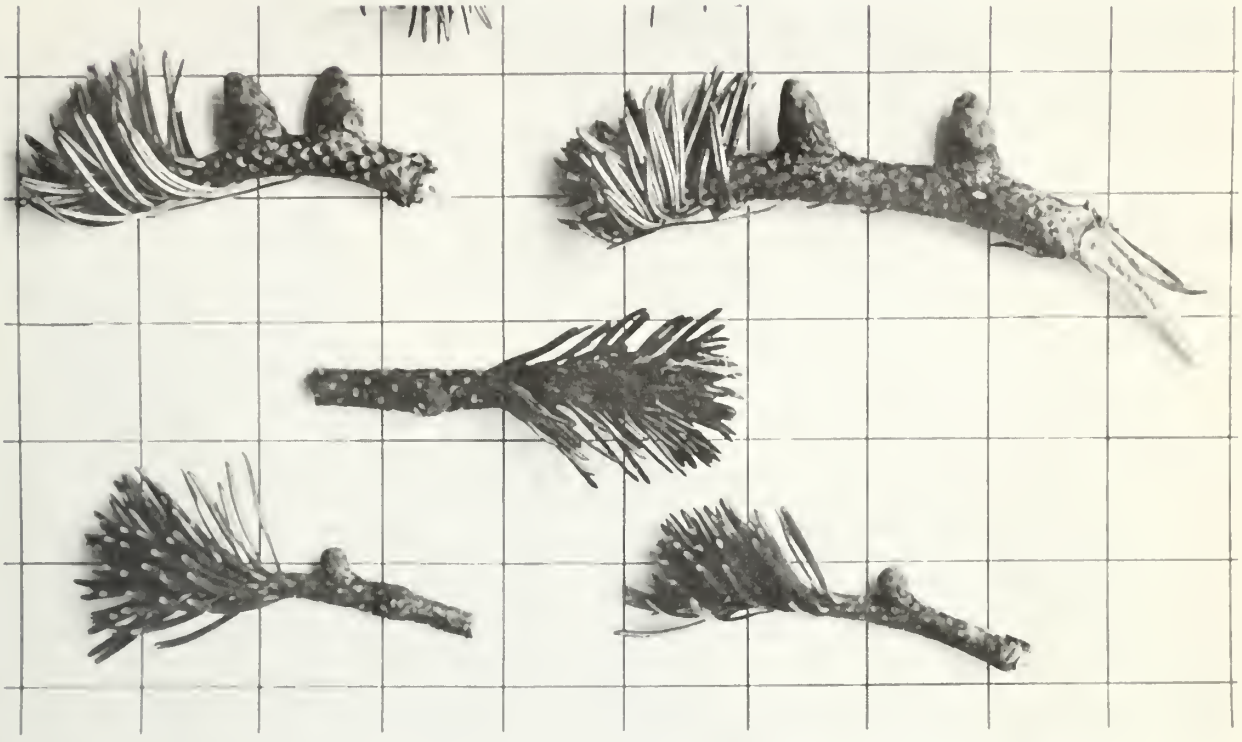

Figure 1.--Female buds of Pacific silver fir, illustrating their readily identifiable character. Buds on the two upper twigs have begun to swell prior to bud burst. One-inch grid on background.

[2/] Abbott, Herschel G. Tree seed preferences of mice and voles in the Northeast. Jour. Forestry 60: 97-99. 1962.

Dick, James. A direct seeding of Pacific silver fir. Weyerhaeuser Co. Forestry Res. Note 33, 4 pp. 1960.